Corresponding to D2

(54) Data conversion apparatus and method in copyright protecting system

(57) In a data conversion apparatus (101) of a copyright protecting system, a data format judging portion (103) judges whether or not the data is of a super distribution format, attribute information obtaining unit (105) identifies the audio contents of the data and obtains the attribute information corresponding to the identified audio contents from the external equipment via said data transmission/receiving portion (102); and a data format conversion portion (104, 105, 106) converts the audio contents together with the obtained attribute information to the super distribution data format to be supplied to an external recording apparatus (121).

Fig.2

FIRST DATA CONVERSION APPARATUS 101

SECOND DATA CONVERSION APPARATUS 121
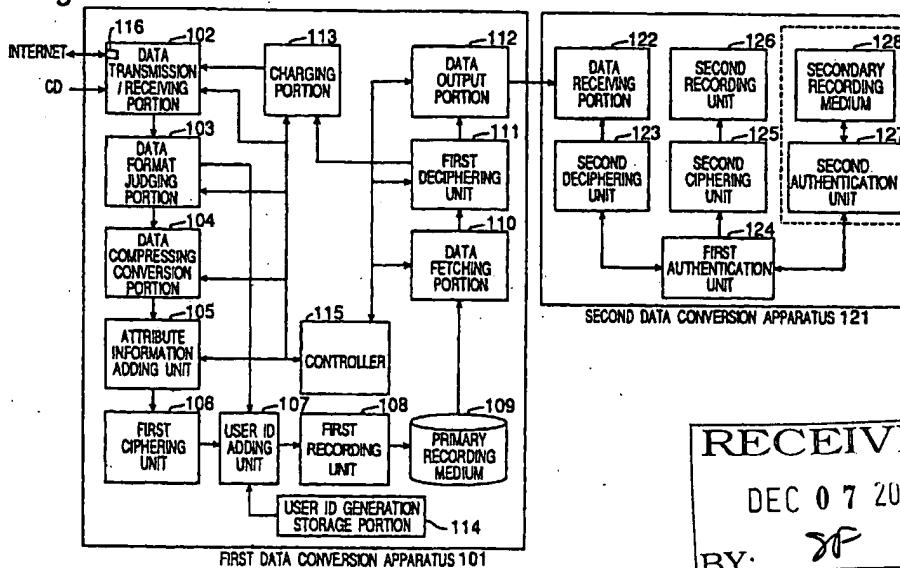
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DEC 0 7 2001
BY:

EP 1 001 419 A1

sion/receiving means;

a data format conversion section for converting the audio contents together with the obtained attribute information to the super distribution data format; and

a controller controlling said data transmission/receiving section, data format judging section, attribute information obtaining section and data format conversion section,

wherein, in the case where said data format judging section judges that the received data is not of the super distribution format, said attribute information obtaining section is so controlled as to obtain the attribute information corresponding to the audio contents from the external equipment, and wherein said data format conversion section is so controlled as to convert the received audio contents together with the obtained attribute information into the super distribution format data, so that the resultant data converted to the super distribution data format is outputted and supplied to the external recording apparatus.

[0007]   Another aspect of the present invention provides a data conversion method converting data including audio contents to super distribution format data and outputting the super distribution format data to be supplied to an external recording stage to be recorded therein,

said super distribution format data including said audio contents and attribute information which represents at least a charge condition permitting a copy of the audio contents,
said data conversion method comprising the steps of:

transmitting and receiving data to and from an external equipment;
judging whether or not the data is of a super distribution format;
identifying the audio contents of the data and obtaining the attribute information corresponding to the identified audio contents from the external equipment;
converting the audio contents together with the obtained attribute information to the super distribution data format; and
controlling said data transmission/receiving step, data format judging step, attribute information obtaining step and data format conversion step,

wherein, in the case where said data format judging step judges that the received data is not of the super distribution format, said attribute information obtaining step is so controlled as to obtain the

attribute information corresponding to the audio contents from the external equipment, and wherein said data format conversion step is so controlled as to convert the received audio contents together with the obtained attribute information into the super distribution format data, so that the resultant data converted to the super distribution data format is outputted and supplied to the external recording stage.

[0008]   A further another aspect of the present invention provides a program storage medium storing a program of a data conversion method converting data including audio contents to super distribution format data and outputting the super distribution format data to be supplied to an external recording stage to be recorded therein,

said super distribution format data including said audio contents and attribute information which represents at least a charge condition permitting a copy of the audio contents,
said data conversion method comprising the steps of:

transmitting and receiving data to and from an external equipment;
judging whether or not the data is of a super distribution format;
identifying the audio contents of the data and obtaining the attribute information corresponding to the identified audio contents from the external equipment;
converting the audio contents together with the obtained attribute information to the super distribution data format; and
controlling said data transmission/receiving step, data format judging step, attribute information obtaining step and data format conversion step,

wherein, in the case where said data format judging step judges that the received data is not of the super distribution format, said attribute information obtaining step is so controlled as to obtain the attribute information corresponding to the audio contents from the external equipment, and wherein said data format conversion step is so controlled as to convert the received audio contents together with the obtained attribute information into the super distribution format data, so that the resultant data converted to the super distribution data format is outputted and supplied to the external recording stage.

[0009]   By this arrangement, audio data, which is non-super distribution formatted data and recorded on CD medium or the like, is converted into a data format

(Embodiment 1)

[0017]   Fig. 2 is a constitutional diagram showing a digital data copyright protecting system according to a first embodiment of the present invention, which the digital data copyright protecting system includes a data conversion system composed of a first data conversion apparatus 101 and a second data conversion apparatus 121.

[0018]   The first data conversion apparatus 101 is interconnected with a host computer of a system control center (not shown) via an online network, and the second data conversion apparatus 121 serving as an external recording apparatus is connected to the first data conversion apparatus 101 via such as a PCMCIA (Personal Computer Memory Card International Association) bus which is described later. It is assumed that the system control center includes external servers (not shown) having database storing such as customer (subscriber) information and charge information and database storing copyright owner (author) and music data information, thereby supervising the control of customers, control of charging, sales and forwarding process. The first data conversion apparatus 101 receives audio contents and/or attribute information corresponding to audio contents from the external servers of the system control center via a digital network.

[0019]   In this constitution, the data conversion system compatibly receives data distributed both via internet and via disc medium such as CD. The first data conversion apparatus 101 is realized generally by a personal computer (PC), which includes a data transmission/receiving portion 102 including at least a network interface 116, data format judging portion 103, data compressing conversion portion 104, attribute information adding unit 105, first ciphering unit 106, user ID adding unit 107, first recording unit 108, primary recording medium 109, data fetching portion 110, first deciphering unit 111, data output portion 112, charging portion 113, user ID generation storage portion 114, and controller 115 for controlling the entire parts of the apparatus. The PC player soft is initially installed in the first data conversion apparatus 101 to primarily records on the hard disc the primarily ciphered music data including attribute information such as charge information. The primarily recorded data is fetched out of the hard disc and then fed to the second data conversion apparatus 121 where the applied data is secondarily ciphered in another standardized encryption format and then secondarily recorded on a secondary recording medium for further copying proceeding. In this construction, the data format judging portion 103 judges whether or not the received data format is of super distribution.

[0020]   The second data conversion apparatus 121 is composed of e.g. a card adaptor of PCMCIA (Personal Computer Memory Card International Association) in the present embodiment, and includes a data receiving portion 122, second deciphering unit 123, first authentication unit 124, second ciphering unit 125, second recording unit 126, second authentication unit 127 and a secondary recording medium 128. Here, the second authentication unit 127 and the secondary recording medium 128 constitute one unit such as a semiconductor (SD) memory card which is detachably attached to the card adaptor of the second data conversion apparatus 121 and loaded onto such as a portable SD-Audio player to reproduce the recorded audio data.

[0021]   Here, the second authentication unit 127 has a control function and mediates between the secondary recording medium 128 and the first authentication unit 124, performing a command/response operation therewith. The secondary recording medium 128 is composed of a flash memory such as EEPROM (Electrically Erasable Programmable Read-Only Memory).

[0022]   It is noted here that, although the explanation is made in the present embodiment that the second data conversion apparatus 121 is composed of a card adaptor of PCMCIA, the second data conversion apparatus 121 may be composed of a DVD-RAM drive applicable to a DVD audio player.

[0023]   Here, in the present embodiment, the explanation is made assuming that data to be recorded is music data, and the music data is super distribution data distributed via internet, or usual non-ciphered data read out of a disc medium such as CD which is inputted to the first data conversion apparatus 101 via a CD drive. The term "super distribution data" means distribution data ciphered to an AAC (Advanced Audio Coding) format including attribute information such as at least charge information, which the cipherment thereof is released (i.e. deciphered) by completing the charging process. That is, possession of the super distribution data per se is not charged but usage for copying thereof is charged. The super distribution data may be secondarily distributed to others, and when secondarily distributed, the data supply source user supplying the data is specified by reference to user ID (to be described later) so that the supply source user can be given a privilege. In this case, the controller 115 may so control the data output portion 112 as to supply the received super distribution format data to the external recording apparatus 121.

[0024]   Fig. 3 shows an example of a data structure depicted in a unit of bit stored in the primary recording medium 109, that is, in the case where the ciphered music data distributed via internet is recorded on the primary recording medium 109 or in the case where the non-ciphered music data of CD ciphered to have the same cipherment format as that of the super distribution data is recorded on the primary recording medium 109.

[0025]   In Fig. 3, a user ID 201 (24 bits) is information indicative of individual users which is generated and stored by the user ID generation storage portion 114 when the PC player software for operating the data conversion system is installed in the PC. Only this information is added to the music data when the ciphered

as a mouse and keyboard with reference to the music title information or information described in a jacket or the like attached to the music CD, and then the user informs the host computer of the demand for purchase via the data transmission/receiving portion 102.

[0037] Here, the attribute information adding unit 105 may extract identification information peculiar to CD such as a number of pieces of the audio contents recorded in the CD and reproduction time thereof so that the attribute information adding unit 105 transmits the extracted identification information to the external server of the host computer via the data transmission/receiving portion 102. Meanwhile, the host computer identifies the selected disc based on the extracted information and the attribute information of the identified CD is transmitted to the data transmission/receiving portion 102. Thus, the attribute information corresponding to the audio contents recorded on the CD is sent from the external server to the the the attribute information adding unit 105 via the network interface 116.

[0038] When receiving the user's demand for purchase, the data transmission/receiving portion 102 is connected with the host computer and the desired music data is specified based on the ISRC information, obtaining the sttribute information such as the charge amount information for secondary recording. The user finally indicates his intention based on the amount of the charge as to whether or not the music data is recorded onto the secondary recording medium 128. It is noted here that the user may specify the music data by directly specifying the music instead of using the ISRC information stored in the TOC area.

[0039] The data format judging portion 103 judges the input data format whether or not the music data is ciphered super distribution formatted data, namely, whether or not the input data is super distribution data, and judges the data input route based on the judgment. In the present embodiment, the data format judging portion 103 judges whether the music data received by the data transmission/receiving means 102 is obtained via internet or via CD medium. When the judgment is made that the music data is super distribution formatted, namely, obtained via internet, the received data is directly transferred to the user ID adding unit 107 where the music data is added with the user ID supplied from the user ID generation storage portion 114, and then the resultant data is recorded on the primary recording medium 109 via the first recording unit 108.

[0040] Meanwhile, when the judgment is made by the data format judging portion 103 that the music data is not super distribution formatted, namely, the data is obtained via the CD medium, the input data is preferably converted from LPCM (Linear Pulse Code Modulation) to MPEG2-AAC (Moving Picture Experts Group 2 Advanced Audio Coding, referred to as "AAC" hereinafter) and then appropriately ciphered, and the resultant ciphered data is primarily recorded on the primary recording medium 109.

[0041] In more detail, the contents of the non-ciphered music data obtained from the CD medium are converted by compression via the data compressing conversion portion 104 in a desired format. In this compressing conversion, the original music data recorded on CD is generally LPCM (Linear Pulse Code Modulation) format data. Such music data is compressed into MPEG-2AAC (Moving Picture Experts Group -2 Advance Audio Coding) format, for example. Since the secondary recording medium 128 uses a small-sized semiconductor memory or the like, this format does not generally have capacity as large as that of CD at present. In ACC system, data is compressed to about 1/10 in size so as to be recorded.

[0042] Moreover, when the judgment is made by the data format judging portion 103 that the music data is obtained via CD medium, the data transmission/receiving portion 102 receives attribute information 202 to 206 corresponding to the music data from the database of the external host computer, and the received attribute information is added to the compression-converted music data by the attribute information adding unit 105.

[0043] In this construction, the attribute information adding unit 105 identifies the received audio contents to specify the source data and obtains the attribute information corresponding to the identified audio contents from the external server via the data transmission/receiving portion 102. The received audio contents together with the obtained attribute information is converted to a super distribution data format via the data compressing conversion portion 104, attribute information adding unit 105 and via the first ciphering unit 106.

[0044] In the present invention, it is noted here that the primary recording medium 109 is not essential in the first data conversion apparatus 101 and the received input data may be transferred to be recorded to the secondary recording medium 128 without primarily recording the data on the hard disc of PC. In this case, the controller 115 controls the data transmission/receiving portion 102 and attribute information adding unit 105 so as to obtain the attribute information from the external database, corresponding to the audio contents of the music CD. Moreover, the controller 115 controls the data compressing conversion portion 104, attribute information adding unit 105 and first ciphering unit 106 so as to convert the received audio contents together with the obtained attribute information into the super distribution data format, and then controls the data output portion 112 so that the resultant data converted to the super distribution data format is outputted and supplied to the external recording apparatus 121 without executing the primary recording.

[0045] The first ciphering unit 106 ciphers the data contents 207 compressed by the data compressing conversion portion 103. At this time, the cipherment is performed with a ciphering key corresponding to the contents deciphering key 206. The ciphered data is added with the user ID 201 by the user ID adding unit

ing portion 122. At this time, since a deciphering key required for deciphering the data 207 is included as the contents deciphering key 206 in the music data, as mentioned above, this deciphering key 206 is used to decipher the contents 207.

[0056] Next, there will be described below a procedure for secondarily ciphering and secondarily recording the deciphered contents 207 based on identifying information peculiar to the secondary recording medium 128. The first authentication unit 124 authenticates justification of the secondary recording medium 128, and is fixed in the second data conversion apparatus 121. The second authentication unit 127 similarly authenticates justification of the secondary recording medium 128 and is integral with the second recording medium 128. For example, when the secondary recording medium 128 is detachable, the second authentication unit 127 is fixed in the secondary recording medium 128.

[0057] There will be described below the authentication method. In this embodiment, it is assumed that the first authentication unit 124 transmits a specified command to the second authentication unit 127, and the second authentication unit 127 transmits a response command to the first authentication unit 124 so as to execute the authentication.

[0058] Fig. 6 shows an example of the command/response between the first and second authentication units. At first, the first authentication unit 124 transmits a Send (User ID) command to the second authentication unit 127. The Send (User ID) command represents that the user ID 201 information created by the user ID generation storage portion 114 in the first data conversion apparatus 101 when the PC player soft peculiar to the copyright protecting system is installed in the PC, and then the user ID is fetched from the music data so as to be transmitted to the second authentication unit 127. When the ID information to be transmitted is correct at this time, the second authentication unit 127 transmits a Send (Device ID) command to the first authentication means 124 in response. The Send (Device ID) command represents that ID information peculiar to the second data conversion apparatus 121 is transmitted to the first authentication unit 124. When the ID information to be transmitted is correct at this time, the first authentication unit 124 transmits a Request (Media ID) command to the second authentication unit 127. This command requests transmission of the identification information peculiar to the secondary recording medium 128. When receiving this Request command, the second authentication unit 127 obtains the identification information peculiar to the secondary recording medium 128 and transmits the peculiar identification information as the Send (Media ID) command to the first authentication unit 124.

[0059] As mentioned above, the ID information peculiar to the first authentication unit 124 and the second authentication unit 127 is transmitted therebetween so that the authentication is executed, and only when the judgment is made that the apparatus is justified, the identification information peculiar to the secondary recording medium 128 is obtained.

[0060] The second ciphering unit 125 obtains the identification information peculiar to the secondary recording medium 128 obtained from the first authentication means 124 and creates a ciphering key based on the peculiar identification information so as to cipher the data outputted from the second deciphering unit 123. Thus, although the ciphered data recorded in the primary recording medium 109 may be of different cipherment format according to the data distribution route, the data cane be converted to a cipherment format based on the identification information peculiar to the secondary recording medium 128 in the secondary ciphering process executed by the second ciphering unit 125.

[0061] Here, since the method of creating the ciphering key based on the peculiar identification information and ciphering data is disclosed in Japanese Patent Application Laid-Open No. 5-257816 (1993), the detailed description thereof is omitted here. The data to be recorded onto the secondary recording medium 128 is thus secondarily ciphered data based on the identification information peculiar to the secondary recording medium 128. Moreover, even if the recorded data of the secondary recording medium is to be copied, since the data is ciphered by the identification information peculiar to the recording medium, the data can not be deciphered normally at the time of reproduction, and thus the copyright of the data is protected.

[0062] The second recording unit 126 records the data secondarily ciphered by the second ciphering unit 125 onto the secondary recording medium 128. The secondary recording medium 128 for recording data is detachable from the second data conversion apparatus 121.

[0063] The operation of the digital data copyright protecting system having the above constitution will be described below with reference to flow charts of Figs. 7 and 8.

[0064] First, the operation of the first data conversion apparatus 101 will be described with reference to the flow chart of Fig. 7. The data transmission/receiving section 102 receives music data (S601). The data format judging portion 103 judges as to whether or not the data is ciphered (S602). When the data is not ciphered, the data is compressed by the data compressing conversion portion 104 (S603) so as to be added with the attribute information. Then, the contents data is ciphered by the first ciphering unit 106 (S604). The ciphered data is added with the user ID and the resultant data is recorded on the primary recording medium 109 (S605).

[0065] Meanwhile, when the data format judging portion 103 judges that the received data is previously ciphered super distribution data, the previously ciphered data is directly added with the user ID, and then primarily recorded on the primary recording

temporarily storage portion 901 manages the music data recorded in the second data conversion apparatus 121.

[0077]   Fig. 11 shows a data structure of the management information. An entry number 1001 represents a number of music data recorded on the recording data management information temporarily storage portion 901, and the entry number 1001 takes integer values of not less than 0. Thereafter, as for entry #1 through entry #N, data is added only by a registered number of entries. ISRC information 1005 is ISRC information of music data to be recorded. Hereinafter, identification information 1006 is a value of identification information peculiar to the secondary recording medium 128 for recording the music data. A compressing format 1007 or the like of the music data is also recorded as the need arises. In such a manner, the music data recorded in the second data conversion apparatus 121 and the secondary recording medium 128 having the music data recorded thereon can be managed in the recording data management information temporarily storage portion 901.

[0078]   Here, there will be described below the case where the same music data is recorded by the same user on different secondary recording media 128. In the present embodiment, the recording permission judging unit 902 executes following three types of processes.

(1) In the case where the different secondary recording media 128 are used, the music data is not permitted to be recorded.
(2) In the case where the different secondary recording media 128 are used, if the music data which have already been recorded onto another recording medium is deleted, the recording is permitted.
(3) In the case where the different secondary recording media 128 are used, a suitable copyright charge is collected.

[0079]   In the following description, the different secondary recording media 128 are a secondary recording medium 128A and a secondary recording medium 128B.

[0080]   When the music data are first recorded onto the secondary recording medium 128A, it is checked that the music data to be recorded have not been recorded on the recording data management information temporarily storage means 901, namely, the corresponding music data have not been recorded onto the recording data management information temporarily storage means 901, and the ISRC information 1005 of the music data, the identification information 1006 peculiar to the secondary recording medium 128A and the like are recorded onto the secondary recording medium 128A.

[0081]   Next, when the same music data is recorded onto the secondary recording medium 128B, the ISRC

information 1005 is retrieved from the information in the recording data management information temporarily storage portion 901, and it is checked that the coincided information exists, namely, the music data to be recorded have been recorded. Next, the identification information 1006 is referred to and a check is made as to whether or not it coincides with the identification information of the secondary recording medium 128B. When they coincide with each other, the recording permission judging unit 902 permits the music data to be recorded onto the secondary recording medium 128B.

[0082]   When they do not coincide with each other, a judgment is made that a user who bears ill will possibly creates a copy of the copied music data, and thus

(1) the recording is not permitted, it is displayed on the display means that the recording cannot be executed and the process is ended.
(2) when the music data which is recorded on another recording medium where the music data (in the present embodiment, the secondary recording medium 128A) have been recorded are deleted and when the music data is recorded onto the secondary recording medium 128B, the recording is permitted. Namely, when the corresponding music data is deleted from the secondary recording medium 128A, the corresponding music data is deleted from the recording data management information temporarily storage portion 901, and thus the recording becomes possible.
(3) a suitable amount of charge is presented to a user, and if the user agrees, the charging process is executed so that the recording onto the secondary recording medium 128B is permitted.

[0083]   Here, the description about the digital data copyright protecting system according to the third embodiment is ended.

[0084]   The above embodiments described only the example of the system which can expect the best effect under the present conditions. The present invention can be modified within the scope which does not deviate from its gist. More concretely, the following modification can be made.

[0085]   The present embodiments describe the secondary recording medium 128 as a semiconductor memory, but it can be replaced by an optical disk such as a DVD-RAM or a hard disk.

[0086]   The present embodiment described that when a user hopes to purchase digital data, the user downloads the digital data. However, such a form is also considered that digital data is once recorded onto the primary recording medium 109 in user's PC regardless of as to whether or not the digital data is purchased and the procedure for purchasing the digital data recorded on the primary recording medium 109 is executed.

[0087]   The present embodiments describe that the digital data copyright protecting system is a personal

reading the data out of a disc medium recorded with the data containing the audio contents and includes a network interface (116) which receives the attribute information corresponding to the audio contents from an external server via a digital network, and wherein said attribute information obtaining section (105) obtains identification information read out of the disc medium and transmits the obtained identification information to the external server via the digital network and receives attribute information corresponding to the audio data recorded in the disc medium from the external server.

5. The data conversion apparatus (101) as claimed in claim 4, wherein said attribute information obtaining section (105) obtains the identification information of the disc medium by way of use's direct input operation thereof.

6. The data conversion apparatus (101) as claimed in claim 4, wherein said attribute information obtaining section (105) obtains the identification information of the disc medium by extracting the number of pieces and reproduction time of the audio contents recorded in the disc medium.

7. The data conversion apparatus (101) as claimed in claim 4, wherein said network interface (116) is connected to an external charging device via the digital network so that said charging section (113) executes the charging operation based on the charge information in cooperation with the external charging device.

8. A data conversion method converting data including audio contents to super distribution format data and outputting the super distribution format data to be supplied to an external recording stage to be recorded therein,

   said super distribution format data including said audio contents (207) and attribute information (201 to 206) which represents at least a charge condition permitting a copy of the audio contents, said data conversion method comprising the steps of:

   transmitting and receiving data to and from an external equipment; judging whether or not the data is of a super distribution format; identifying the audio contents of the data and obtaining the attribute information corresponding to the identified audio contents from the external equipment; converting the audio contents together

with the obtained attribute information to the super distribution data format; and controlling said data transmission/receiving step, data format judging step, attribute information obtaining step and data format conversion step,

   wherein, in the case where said data format judging step judges that the received data is not of the super distribution format, said attribute information obtaining step is so controlled as to obtain the attribute information corresponding to the audio contents from the external equipment, and wherein said data format conversion step is so controlled as to convert the received audio contents together with the obtained attribute information into the super distribution format data, so that the resultant data converted to the super distribution data format is outputted and supplied to the external recording stage.

9. The data conversion method as claimed in claim 8 further comprising a data outputting step, wherein in the case where said data format judging step judges that the received data is of the super distribution format, said control step so controls said data outputting step as to supply the received super distribution format data to said external recording stage.

10. The data conversion method as claimed in claim 9 further comprising the steps of: recording the super distribution format data; and

   executing a charging operation based on the charge condition of the attribute information, wherein said control step so controls said charging step as to execute the charging operation of the super distribution format data based on the charge condition of the attribute information when a copy of the super distribution format data read out by said recording step is supplied to said external recording stage to be recorded therein.

11. The data conversion method as claimed in claim 10, wherein said data transmission/receiving step includes a data read-out step for reading the data out of a disc medium recorded with the data containing the audio contents and includes a data receiving step receiving the attribute information corresponding to the audio contents by a network interface from an external server via a digital network, and wherein said attribute information obtaining step obtains identification information read out of the disc medium and transmits the obtained identi-

20. The program storage medium as claimed in claim 18, wherein said attribute information obtaining step obtains the identification information of the disc medium by extracting the number of pieces and reproduction time of the audio contents recorded in the disc medium.

21. The program storage medium as claimed in claim 18, wherein the network interface is connected to an external charging device via the digital network so that said charging step executes the charging operation based on the charge information in cooperation with the external charging device.
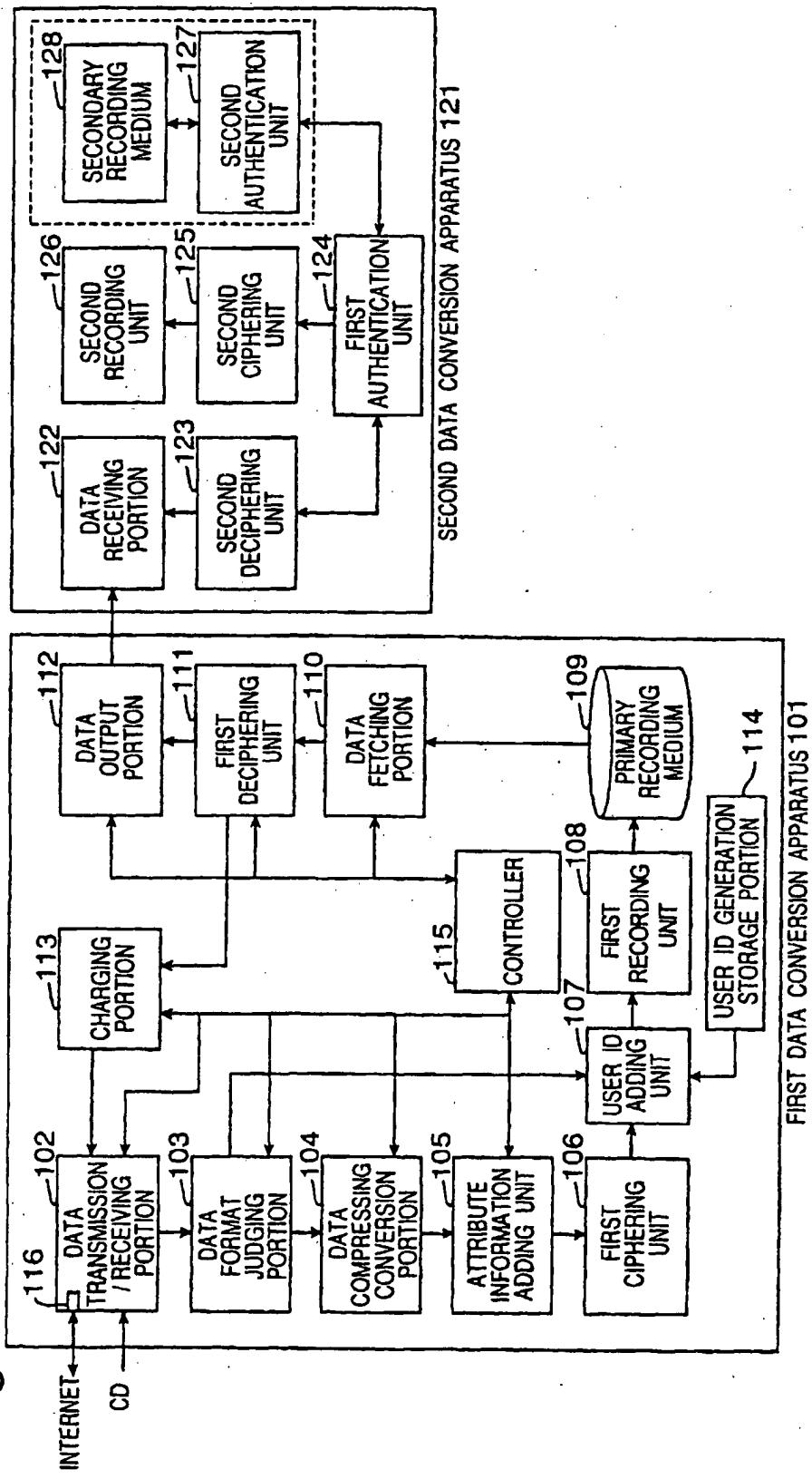
5

10

15

20

25

30

35

40

45

50

55

Fig.2

SECOND DATA CONVERSION APPARATUS 121

- SECONDARY RECORDING MEDIUM — 128
- SECOND AUTHENTICATION UNIT — 127
- SECOND RECORDING UNIT — 126
- SECOND CIPHERING UNIT — 125
- FIRST AUTHENTICATION UNIT — 124
- DATA RECEIVING PORTION — 122
- SECOND DECIPHERING UNIT — 123

FIRST DATA CONVERSION APPARATUS 101

- DATA OUTPUT PORTION — 112
- FIRST DECIPHERING UNIT — 111
- DATA FETCHING PORTION — 110
- PRIMARY RECORDING MEDIUM — 109
- USER ID GENERATION STORAGE PORTION — 114
- CHARGING PORTION — 113
- CONTROLLER — 115
- FIRST RECORDING UNIT — 108
- USER ID ADDING UNIT — 107
- DATA TRANSMISSION / RECEIVING PORTION — 102
- DATA FORMAT JUDGING PORTION — 103
- DATA COMPRESSING CONVERSION PORTION — 104
- ATTRIBUTE INFORMATION ADDING UNIT — 105
- FIRST CIPHERING UNIT — 106
- 116

INTERNET

CD

Fig.4

301	302	303	304
MUSIC TITLE	SINGER'S NAME	PRICE	DATA SOURCE ADDRESS
MUSIC A	A	100YEN	www.song/song01
MUSIC B	B	10YEN	www.song/song02
MUSIC C	C	0YEN	www.song/song03
MUSIC D	D	30YEN	www.song/song04
MUSIC E	E	10YEN	www.song/song05

Fig.5

401	402	403
INDEX No.	START ADDRESS	END ADDRESS
1	1	100
2	1208	1278
3	1279	1350
4	707	811
5	105	184
6	200	290
7	300	395

Fig.7

START

S601
RECEIVING MUSIC DATA

S602
CIPHERED OR
NON-CIPHERED?

NO

YES

COMPRESSING
CONVERSION | S603

FIRST CIPHERING | S604

S605
PRIMARILY RECORDING

S606
FETCHING DATA

S607
FIRST DECIPHERING

S608
OUTPUT
DECIPHERED DATA

S609
CHARGING

END
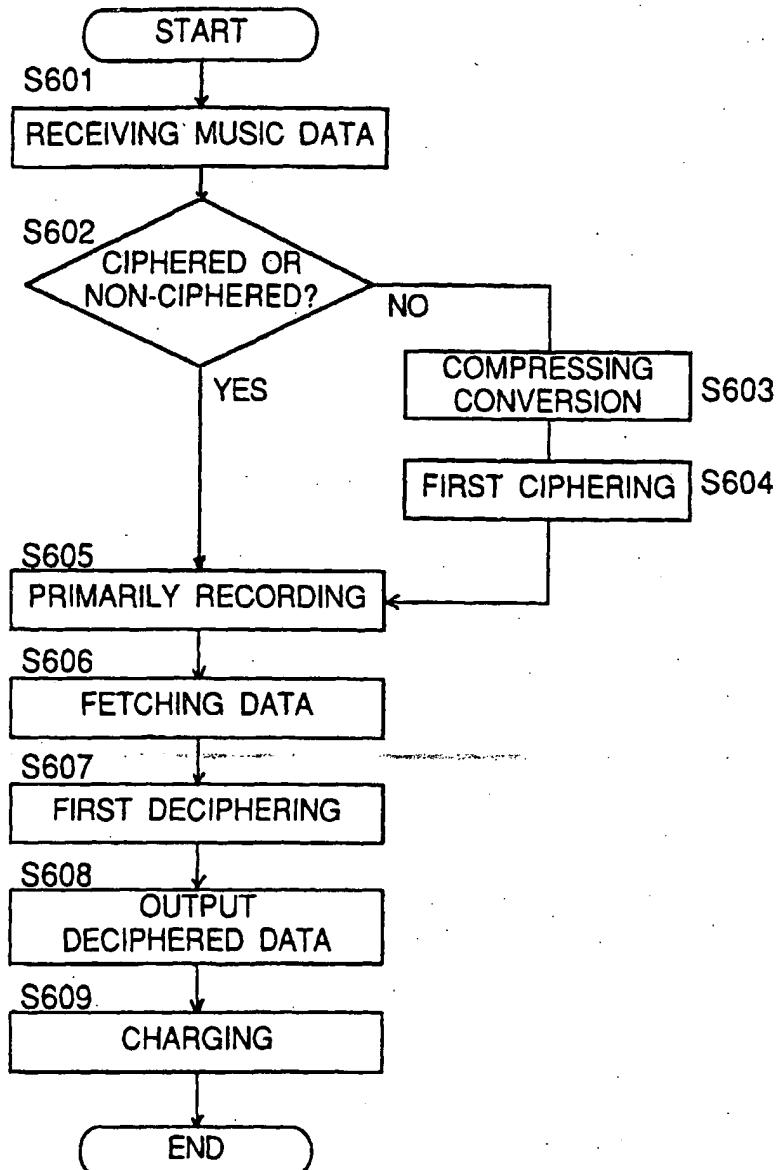
Fig.9

MUSIC TITLE	SINGER'S NAME	COMPRESSION FORMAT	PRICE	DATA SOURCE ADDRESS
MUSIC A	A	LPCM	100YEN	www.song/song01.1
MUSIC A	A	AAC	50YEN	www.song/song01.2
MUSIC B	B	LPCM	30YEN	www.song/song02.1
MUSIC B	B	AAC	10YEN	www.song/song02.2

Column reference labels above: 301, 302, 801, 303, 304

Fig.11

ENTRY No. 1001	
ENTRY #1 1002	
ENTRY #2 1003	
⋮	
ENTRY #N 1004	

ISRC INFORMATION 1005
IDENTIFICATION INFORMATION 1006
COMPRESSING FORMAT 1007
⋮
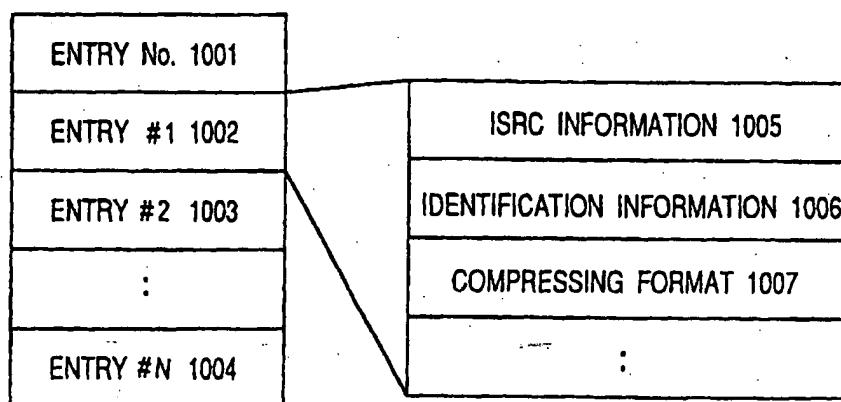
))) European Patent
    Office

EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	EP 0 561 685 A (FUJITSU LTD) 22 September 1993 (1993-09-22) * claim 1; figures 2,7 *	1,8,15	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22 March 2000	Brunet, L

EPO FORM 1503 03.82 (P04C01)

AUTOMATIC VENDING MACHINE

Report a data error here

Abstract of JP5325017

PURPOSE:To provide the automatic vending machine which enables all music names to be confirmed and listened to when a CD, an LC, etc., are purchased, the records of CDs, LDs, etc., to be obtained through media having different formats, and an optional piece of music information recorded on the CDs, LDs, etc., to be purchased. CONSTITUTION:A disk selecting/reproducing device 25 selects an optional CD or LD among plural CDs, LDs, etc., and all music names recorded on the selected CD or LD are displayed on a display unit 3. An optional music name among all the music names displayed on the display unit 3 is selected by operating a keyboard 4 and the music corresponding to the selected music name is reproduced by the disk selecting/reproducing device 25. Further, the music corresponding to the selected music name is recorded by a recording device 17.